

PATENT APPLICATION

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Amendment to Claims

21
1.(original) A method comprising:

partitioning a non-volatile storage media;

storing data in a first partitioned section of the non-volatile storage media;

and

storing, in a second partitioned section of the non-volatile storage media,
metadata corresponding to the data stored in the first partitioned section of the
non-volatile storage media.

2.(original) The method of claim 1, wherein storing the metadata as
packed metadata block.

3.(original) The method of claim 1, wherein the partitioning is logical.

4.(original) The method of claim 1, wherein storing cache data in the first
partitioned section.

5.(original) The method of claim 4, further comprising:
updating the data and metadata atomically when a line of cache data in the
first partitioned section is changed.

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6.(original) The method of claim 1, further comprising:
allocating a portion of a mass storage device as the non-volatile storage
media.

7.(original) A non-volatile memory comprising:
a first section to store data; and
a second section partitioned from the first section, the second section to
store metadata for the data stored in the first section.

8.(original) The memory of claim 7, wherein the second section is to
store the metadata as packed metadata blocks.

9.(original) The memory of claim 7, wherein the partitioning of the first
section and the second section is logical.

10.(original) The memory of claim 7, wherein the non-volatile memory is a
portion of a massive storage device.

11.(original) The memory of claim 10, wherein the mass storage device is
one of a disk drive, a Flash memory, a ferroelectric random access memory, or a
polymer ferroelectric random access memory.

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12.(original) The memory of claim 7, wherein the non-volatile memory is a cache memory.

13.(original) A system comprising:
a non-volatile storage media having a first section and a second section partitioned from the first section; and
a memory control hub to cause the first section to store data and the second section to store metadata for the data stored in the first section.

14.(original) The system of claim 13, wherein second section is to store the metadata as packed metadata blocks.

15.(original) The system of claim 13, wherein the partition is logical.

16.(original) The system of claim 15, further comprising a massive storage device and wherein a portion of the massive storage device is the non-volatile storage media.

17.(original) The system of claim 13, wherein the non-volatile storage media is a cache memory.

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18.(original) A method comprising:
partitioning a non-volatile storage media;
storing cache data in a first partitioned section of the non-volatile storage media;

storing metadata corresponding to the cache data in a second partitioned section of the non-volatile storage media; and

accessing the second partitioned section to determine the state of the cache data in a system boot.

19.(original) The method of claim 18, wherein storing the metadata in the second partitioned section as packed metadata blocks.

20.(original) The method of claim 18, wherein the partition is logical.

21.(original) The method of claim 18, further comprising:
updating the cache data and metadata atomically when a line of cache data in the first partitioned section is changed.

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22.(original) A program loaded in a computer readable medium comprising:

a first group of computer instructions to logically partition a non-volatile storage media;

a second group of computer instructions to store data in a first partitioned section of the non-volatile storage media; and

a third group of computer instructions to store metadata for the data in a second partitioned section of the non-volatile storage media.

23.(original) The program of claim 22, wherein the second group of computer instructions include computer instructions to store the metadata as packed metadata blocks.

24.(original) The program of claim 22, wherein the second group of computer instructions include computer instructions to store cache data as the data in the first partitioned section.

25.(original) The program of claim 24, further comprising:
computer instructions to update the data and metadata atomically when a line of cache data in the first partitioned section is changed.

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26.(original) The program of claim 24, further comprising:
computer instructions to access a line of the second partitioned section to
read metadata for the cache data in the first partitioned section.

27.(original) A program loaded in a computer readable medium
comprising:

a first group of computer instructions to logically partition a non-volatile
storage media;

a second group of computer instructions to store cache data in a first
partitioned section of a non-volatile storage media;

a third group of computer instructions to store, in a second partitioned
section of the non-volatile storage media, metadata corresponding to the cache
data stored in the first partitioned section; and

a fourth group of instructions to access the second partitioned section to
determine the state of the cache data.

28.(original) The program of claim 27, wherein the third group of computer
instructions includes computer instructions to store the metadata as packed
metadata blocks.

29.(original) The program of claim 27, further comprising:
computer instructions to update the cache data and metadata atomically
when a line of cache data in the first partitioned section is changed.

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30.(original) The program of claim 27, further comprising:
computer instructions to allocate a portion of a mass storage device as the
non-volatile storage media.

31.(original) A system boot comprising:
accessing a first partitioned section of a non-volatile cache memory to read
metadata for cache data stored in a second partitioned section of the non-volatile
cache memory; and
determining the state of the cache data based upon the read metadata to
initialize the non-volatile cache memory for the system boot.

32.(original) The system boot of claim 31, wherein the metadata is stored
in the first partitioned section as packed metadata blocks.

33.(original) The system boot of claim 31, wherein the non-volatile cache
memory is logically partitioned into the first and second partitioned sections.

34.(original) The system boot of claim 31, further comprising: allocating a
portion of a mass storage device as the non-volatile cache memory.

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35.(original) The system boot of claim 34, wherein the mass storage device is one of a disk drive, a Flash memory, a ferroelectric random access memory, or a polymer ferroelectric random access memory.

36.(newly added) An apparatus, comprising:
a non-volatile cache device; and
a storage device coupled to the non-volatile cache device, wherein the storage device is a polymer ferroelectric memory.

37.(newly added) The apparatus of claim 36, further comprising a memory control hub coupled to the storage device and adapted to store data in a first section of the non-volatile cache device and to store metadata for the data in a second section of the non-volatile cache device, wherein the first section is partitioned from the second section.

38.(newly added) The apparatus of claim 37, further comprising a main memory coupled to the memory control hub.

39.(newly added) The apparatus of claim 36, wherein the non-volatile cache device is external to the mass storage device.

40.(newly added) The apparatus of claim 36, wherein the non-volatile cache is a portion of the mass storage device.

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41.(newly added) An apparatus, comprising:
a storage device comprising a non-volatile cache, wherein the storage device is a polymer ferroelectric memory.

42.(newly added) The apparatus of claim 41, wherein the non-volatile cache has a first section to store cache data and a second section to store metadata for the cache data, wherein the first section is partitioned from the second section.

43.(newly added) The apparatus of claim 41, further comprising:
a memory control hub coupled to the storage device and adapted to store data in a first section of the non-volatile cache and store metadata for the data in a second section of the non-volatile cache, wherein the first section is partitioned from the second section.

44.(newly added) The apparatus of claim 41, further comprising:
a main memory coupled to the memory control hub.